

Claims

What is claimed is:

1. A fluid flow-control apparatus for a swing system of a work machine, comprising:
 - a source of variable pressurized fluid;
 - a directional flow device coupled to said source of pressurized fluid, said directional flow device having a directional flow member;
 - a flow-compensation device coupled to said directional flow device;
 - a fluid flow-biasing device coupled to said flow-compensation device; and
 - a plurality of motors coupled to said directional flow device.
2. The flow-control apparatus set forth in claim 1, wherein said fluid flow-biasing device includes an actuator.
3. The flow-control apparatus set forth in claim 2, wherein said flow-compensation device includes a flow-metering member coupled to said actuator, said flow-metering member being in communication with said fluid flow of said swing system.
4. The flow-control apparatus set forth in claim 3, wherein said flow-metering member is positionable to meter said fluid flow of said swing system.
5. The flow-control apparatus set forth in claim 3, wherein fluid pressure from said swing system is in communication with said actuator to position said flow-metering member.

6. The flow-control apparatus set forth in claim 4, including a control device coupled to said fluid flow-biasing device, said control device outputting a signal to said fluid flow-biasing device to position said flow-metering member.

7. The flow-control apparatus set forth in claim 6, including at least one sensor coupled to said control device, said sensor inputting a signal to said control device based on at least one pre-determined parameter.

8. The flow-control apparatus set forth in claim 7, wherein said at least one sensor is a load sensor.

9. The flow-control apparatus set forth in claim 7, wherein said at least one sensor is a swing angle sensor.

10. A method for controlling the fluid flow in a swing system of a work machine, said swing system includes a fluid flow-control apparatus, said fluid flow-control apparatus includes a fluid flow-biasing device coupled to a flow-compensation device, said flow-compensation device being coupled to a directional flow device, and said directional flow device including a directional flow member, comprising the steps of:

activating said swing system;

controlling said fluid flow using a fluid flow-control apparatus.

11. The method set forth in claim 10, including metering said fluid flow using a flow-metering member included in said flow-compensation device.

12. The method set forth in claim 11, including adjusting said flow-metering member using fluid pressure from said swing system in fluid communication with an actuator included in said fluid flow-biasing device, said fluid flow-biasing device being coupled to said flow-metering member.

13. The method set forth in claim 11, including inputting an output signal from a control device to said flow-compensation device, said control device being coupled to said flow-compensation device.

14. The method set forth in claim 13, including adjusting said flow-metering member using said signal from said control device.

15. The method set forth in claim 14, including inputting an input signal to said control device from at least one sensor, said signal being based on pre-determined parameters.